

REMARKS

This is in response to the Office Action of March 24, 2008. Claims 1, 13, and 15 are amended to clarify that the plasticizer is alkenyl succinic anhydride or alkenyl succinate. Claims 15 and 16 are amended to specify cellulosic biopolymers in view of such disclosure as that in lines 4-6 on page 3 of the specification. New claim 17 is split out of original claim 8. Various formal amendments are made to all of the claims to bring them into accordance with U.S. practice. No new matter is added. Claims 1-17 are pending in the application.

Objection was raised to claims 5 and 8. Claim 8 is amended to overcome the issue noted by the Examiner. It is respectfully pointed out that "rapeseed oil" in claim 5 refers to a common food-grade oil (one variety of which is canola oil).

Claims 15 and 16 were rejected under the first paragraph of 35 U.S.C. § 112 as exceeding the scope of the enabling disclosure. Office Action, pages 2-5. Claim 15 is amended to specify cellulosic biopolymers, thereby obviating this ground of rejection.

Claims 1-16 were rejected under the second paragraph of 35 U.S.C. § 112 as failing to define the invention properly. Office Action, pages 5-6. The language of claim 1 is clarified. Claim 7 is amended to further restrict claim 5. The "such as" language has been deleted from claim 8. The terminology "derivatives" in claim 13 is limited to cellulose ether, cellulose ester, starch ether, or starch ester derivatives. Processing claims 15 and 16 are amended to reduce issues in this application.

Claims 15 and 16 were rejected on the ground of obviousness-type double patenting over claims 1, 2, and 19 of US 6,780,903 B2 (Peltonen). Office Action, pages 7-8. The essence of the rejection is embodied in the Examiner's assertion that "the scheme taught by '903 could be employed in the instant method too." Thus, what the Examiner is saying is that the present invention is *prima facie* obvious because a person of ordinary skill in the art *could* carry it out.

"The mere fact that a reference *could be* modified to produce the patented invention would not make the modification obvious unless it is suggested by the prior art." *Libbey-Owens Ford Co. v. BOC Group Inc.*, 655 F. Supp. 897, 906, 4 USPQ2d 1097, 1103 (D.N.J. 1987) (emphasis supplied). "Something in the prior art as a whole must suggest the *desirability* ... of making the combination." *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051-52, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988) (emphasis supplied). "The mere combination of prior art references does not make an invention obvious unless something in the prior art suggests or reasonably implies an *advantage to be derived* from uniting their teachings." *Creative Pioneer Products Corp. v. K-Mart Corp.*, 5 USPQ2d 1841, 1844 (S.D. Tex. 1986) (emphasis supplied). Accordingly, withdrawal of the obviousness-type double patenting rejection is in order and is earnestly solicited.

Claims 1-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hassmaa in view of Yoshioka. Office Action, pages 9-11. The rejection is respectfully traversed.

The present invention concerns a polymer dispersion or solution containing a hydrophobic polysaccharide, which is dispersed or dissolved in liquid phase, and a plasticizing composition of the polysaccharide, wherein at least 10% by weight of the plasticizing composition consists of an alkenyl succinic anhydride or alkenyl succinate. This invention as is both novel and inventive.

The closest prior art is Yoshioka, which discloses internal plasticization of cellulose acetates with the aid of succinic acid anhydride and epoxy compounds. The Hassmaa reference is further away from Applicants' invention. As is apparent from the following detailed discussion, the present invention differs in many respects from Yoshioka.

In the first place, Yoshioka fails to disclose the use of *alkenyl* succinic anhydride or *alkenyl* succinates. Instead, Yoshioka deals with succinic acid anhydride which lacks an alkenyl side chain. The same is true for Hassmaa as well. The present invention is therefore novel over the art.

Moreover, the present invention provides significant advantages, which are discussed on pages 5 and 6 of the specification. In addition, Applicants respectfully point out the following

benefits provided by the present invention:

- Using the present invention, a considerable enhancement of water resistance is reached for films produced from starch acetate dispersions; film formation – or in other words the fusion or melting together of the spheres/particles of the dispersion – is improved. It is also possible to improve film formation of commercial ethyl cellulose dispersion with the plasticizer used in the present invention. Applicants have obtained an integral film capable of limiting penetration of a medicine already at low temperatures.
- The mechanical properties of ethyl cellulose and starch acetate are improved to a considerable extent by the present invention. In the art, there is no indication that it would be possible to produce an elastic film from ethyl cellulose.
- For plasticization, there is no need for a chemical reaction (internal plasticization). Instead, plasticization can be achieved during preparation of the dispersion at temperatures below 100 degrees and during the preparation of polymer solutions even without heating. The present plasticizers do not repel the polymers even at high concentrations.

In Yoshioka, there is no indication of any results and improvements of the above kind. Strictly speaking, the Yoshioka reference does not even concern plasticization of cellulose acetate (CA) with succinic anhydride (SA), but the plasticization is effected by the use of monoepoxides. It is unlikely that plasticization could not even have been achieved without epoxy-compounds. It is believed that in order to plasticize cellulose acetate with the substances used in the reference, a chemical reaction is needed. The reaction should give rise to grafting. The reference is therefore concerned with so-called “internal plasticization”, a reaction which requires strict monitoring and batch control.

Accordingly, the Yoshioka process is entirely different than the process of the present invention, which relates to external plasticization. The polymers and plasticizers selected by Applicants herein are very compatible – that is, they fit well together – because there does not appear to be any “sweating-out” or migration of the plasticizer even at high concentrations. The excellent compatibility is also reflected by the improvements of the mechanical properties and

reduction in water steam penetration even when the concentration of the plasticizing agent rises to more than 70 %. In Yoshioka, merely external plasticization with a compound of the indicated kind (i.e. without reaction) would lead to migration of the plasticizing agent from the polymer even at low concentrations (e.g. 11 %) of SA, calculated from the polymer. Therefore, any potential use of the teaching of Yoshioka would lead to internal plasticization where the epoxy-compounds are needed.

Applicants provide herewith a Declaration under 37 CFR 1.132, executed by Dr. Soili Hellevi Peltonen on September 18, 2008. The Declaration describes the results of comparative tests using Yoshioka, which have been carried out with respect to Example 4 of the present application. In other words, the Declaration shows how well succinic anhydride works during dispersing as compared to the alkenyl succinic anhydride of the present invention.

The details of the testing and the results thereof are set forth in the Declaration. The results clearly show that succinic anhydride does not work as a plasticizing agent for, e.g., hydroxypropyl starch acetate.

It is also pointed out by Dr. Peltonen that poor predictability is typical for plasticization. As known in the art, e.g. diethyl succinate plasticizes well but dibutyl succinate is a poor plasticizer. In Yoshioka, the plasticizing agent is not in the first place the succinic anhydride by the side chain formed by succinic anhydride and epoxy. Based on prior knowledge, it could have been expected that alkenyl succinate – which is less polar than succinic anhydride – would be even inferior to that compound as a plasticizer. The situation is, however, the contrary. Inner plasticization does not give any indication of how a compound would potentially work as an external plasticizer.

Claims 1-17 presently before the Examiner are clearly distinguished over the prior art. Withdrawal of the rejection of claims 1-16 under 35 U.S.C. § 103(a) as being unpatentable over Hassmaa in view of Yoshioka is in order and is earnestly solicited.

Claims 1-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,780,903 B2 (Peltonen). Office Action, pages 11-13. The Peltonen patent is being used as a reference under the provisions of 35 U.S.C. § 102(e). However, application Serial No.

10/528,993 (that is, the present application) and US 6,780,903 B2 (that is, the Peltonen patent) were, at the time the invention of application Serial No. 10/528,993 was made, both owned by Valtion Teknillinen Tutkimuskeskus. Accordingly, the Peltonen patent is disqualified as a reference against the present application.

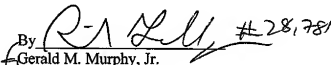
Contact information

If the Examiner has any questions concerning this application, the Examiner is invited to contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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